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1235						1240					1245			
Asn	Thr	Ser	Ser	Gly	Tyr	Pro	Tyr	His	Lys	Gln	Lys	Ser	Lys	Asp
1250						1255					1260			
Trp	Thr	Gly	Ser	Ala	Phe	Ile	Gly	Xaa	Leu	Gly	Asp	Gln	Ala	Thr
1265						1270					1275			
His	Ala	Asn	Asn	Met	Tyr	Glu	Met	Gly	Lys	Ser	Met	Arg	Pro	Ile
1280						1285					1290			
Tyr	Thr	Ala	Ala	Leu	Lys	Asp	Glu	Leu	Val	Lys	Pro	Asp	Lys	Ile
1295						1300					1305			

Tyr Gly Lys Ile Lys Lys Arg Leu Leu Trp Gly Ser Asp Leu Xaa
 1310 1315 1320
 Thr Met Ile Arg Ala Ala Arg Ala Phe Gly Pro Phe Cys Asp Ala
 1325 1330 1335
 Leu Lys Glu Xaa Cys Ile Phe Asn Pro Ile Arg Val Gly Met Ser
 1340 1345 1350
 Met Asn Glu Asp Gly Pro Phe Ile Phe Ala Arg His Ala Asn Phe
 1355 1360 1365
 Arg Tyr His Met Asp Ala Asp Tyr Thr Arg Trp Asp Ser Thr Gln
 1370 1375 1380
 Gln Arg Ala Ile Leu Lys Arg Ala Gly Asp Ile Met Xaa Arg Leu
 1385 1390 1395
 Ser Pro Glu Pro Asp Leu Ala Arg Val Val Met Asp Asp Leu Leu
 1400 1405 1410
 Ala Pro Ser Leu Leu Asp Val Gly Asp Xaa Lys Ile Val Val Glu
 1415 1420 1425
 Glu Gly Leu Pro Ser Gly Cys Pro Cys Thr Thr Gln Leu Asn Ser
 1430 1435 1440
 Leu Ala His Trp Ile Leu Thr Leu Cys Ala Met Val Glu Val Thr
 1445 1450 1455
 Arg Val Asp Pro Asp Ile Val Met Gln Glu Ser Glu Phe Ser Phe
 1460 1465 1470
 Tyr Gly Asp Asp Glu Val Val Ser Thr Asn Leu Glu Leu Asp Met
 1475 1480 1485
 Val Lys Tyr Thr Met Ala Leu Arg Arg Tyr Gly Leu Leu Pro Thr
 1490 1495 1500
 Arg Ala Asp Lys Glu Glu Gly Pro Leu Glu Arg Arg Gln Thr Leu
 1505 1510 1515

Gln Gly Ile Ser Phe Leu Arg Arg Ala Ile Val Gly Asp Gln Phe
 1520 1525 1530

Gly Trp Tyr Gly Arg Leu Asp Arg Ala Ser Ile Asp Arg Gln Leu
 1535 1540 1545

Leu Trp Thr Lys Gly Pro Asn His Gln Asn Pro Phe Glu Thr Leu
 1550 1555 1560

Pro Gly His Ala Gln Arg Pro Ser Gln Leu Met Ala Leu Leu Gly
 1565 1570 1575

Glu Ala Ala Met His Gly Glu Lys Tyr Tyr Arg Thr Val Ala Ser
 1580 1585 1590

Arg Val Ser Lys Glu Ala Ala Gln Ser Gly Ile Xaa Met Val Val
 1595 1600 1605

Pro Thr Pro Pro Ile Cys Phe Ala Leu Gly Ala Leu Trp Asn Asn
 1610 1615 1620

Gly Cys
 1625

<210> 3
 <211> 541
 <212> PRT
 <213> Murine Norovirus type 1

<220>
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 <223> Variable amino acid

<220>
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 <222> (52)..(52)
 <223> Variable amino acid

<220>
 <221> misc_feature
 <222> (106)..(106)
 <223> Variable amino acid

<220>
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 <222> (291)..(291)
 <223> Variable amino acid

<400> 3

Met Arg Met Ser Asp Gly Ala Ala Pro Lys Ala Asn Gly Ser Glu Ala
 1 5 10 15

Ser Gly Gln Asp Leu Val Pro Ala Ala Val Glu Gln Ala Val Pro Xaa
 20 25 30

Gln Pro Val Ala Gly Ala Ala Leu Ala Ala Pro Ala Ala Gly Gln Ile
 35 40 45

Asn Gln Ile Xaa Pro Trp Ile Phe Gln Asn Phe Val Gln Cys Pro Leu
 50 55 60

Gly Glu Phe Ser Ile Ser Pro Arg Asn Thr Pro Gly Glu Ile Leu Phe
 65 70 75 80

Asp Leu Ala Leu Gly Pro Gly Leu Asn Pro Tyr Leu Ala His Leu Ser
 85 90 95

Ala Met Tyr Thr Gly Trp Val Gly Asn Xaa Glu Val Gln Leu Val Leu
 100 105 110

Ala Gly Asn Ala Phe Thr Ala Gly Lys Val Val Val Ala Leu Val Pro
 115 120 125

Pro Tyr Phe Pro Lys Gly Ser Leu Thr Thr Ala Gln Ile Thr Cys Phe
 130 135 140

Pro His Val Met Cys Asp Val Arg Thr Leu Glu Pro Ile Gln Leu Pro
 145 150 155 160

Leu Leu Asp Val Arg Arg Val Leu Trp His Ala Thr Gln Asp Gln Glu
 165 170 175

Glu Ser Met Arg Leu Val Cys Met Leu Tyr Thr Pro Leu Arg Thr Asn
 180 185 190

Ser Pro Gly Asp Glu Ser Phe Val Val Ser Gly Arg Leu Leu Ser Lys
 195 200 205

Pro Ala Ala Asp Phe Asn Phe Val Tyr Leu Thr Pro Pro Ile Glu Arg
 210 215 220

Thr Ile Tyr Arg Met Val Asp Leu Pro Val Ile Gln Pro Arg Leu Cys
 225 230 235 240

Thr His Ala Arg Trp Pro Ala Pro Val Tyr Gly Leu Leu Val Asp Pro
 245 250 255

Ser Leu Pro Ser Asn Pro Gln Trp Gln Asn Gly Arg Val His Val Asp
 260 265 270

Gly Thr Leu Leu Gly Thr Thr Pro Ile Ser Gly Ser Trp Val Ser Cys
 275 280 285

Phe Ala Xaa Glu Ala Ala Tyr Lys Phe Gln Ser Gly Thr Gly Glu Val
 290 295 300

Ala Thr Phe Thr Leu Ile Glu Gln Asp Gly Ser Ala Tyr Val Pro Gly
 305 310 315 320

Asp Arg Ala Ala Pro Leu Gly Leu Pro Arg Phe Leu Trp Ala Thr Gly
 325 330 335

Asp Arg Gly Pro Asp Arg Asp His Gln Asp Trp Arg Gln Ala Gln Gly
 340 345 350

His His Phe Glu Met Ile Leu Gly Pro Thr Thr Asn Ala Asp Gln Ala
 355 360 365

Pro Tyr Gln Gly Arg Val Phe Ala Ser Val Thr Ala Ala Ala Ser Leu
 370 375 380

Asp Leu Val Asp Gly Arg Val Arg Ala Val Pro Arg Ser Ile Tyr Gly
 385 390 395 400

Phe Gln Asp Thr Ile Pro Glu Tyr Asn Asp Gly Leu Leu Val Pro Leu
 405 410 415

Ala Pro Pro Ile Gly Pro Phe Leu Pro Gly Glu Val Leu Leu Arg Phe
 420 425 430

Arg Thr Tyr Met Arg Gln Ile Asp Thr Ala Asp Ala Ala Ala Glu Ala
 435 440 445

Ile Asp Cys Ala Leu Pro Gln Glu Phe Val Ser Trp Phe Ala Ser Asn
 450 455 460

Ala Phe Thr Val Gln Ser Glu Ala Leu Leu Leu Arg Tyr Arg Asn Thr
 465 470 475 480

Leu Thr Gly Gln Leu Leu Phe Glu Cys Lys Leu Tyr Asn Glu Gly Tyr
 485 490 495

Ile Ala Leu Ser Tyr Ser Gly Ser Gly Pro Leu Thr Phe Pro Thr Asp
 500 505 510

Gly Ile Phe Glu Val Val Ser Trp Val Pro Arg Leu Tyr Gln Leu Ala
 515 520 525

Ser Val Gly Ser Leu Ala Thr Gly Arg Met Leu Lys Gln
 530 535 540

<210> 4

<211> 208

<212> PRT

<213> Murine Norovirus type 1

<400> 4

Met Ala Gly Ala Leu Phe Gly Ala Ile Gly Gly Gly Leu Met Gly Ile
 1 5 10 15

Ile Gly Asn Ser Ile Ser Asn Val Gln Asn Leu Gln Ala Asn Lys Gln
 20 25 30

Leu Ala Ala Gln Gln Phe Gly Tyr Asn Ser Ser Leu Leu Ala Thr Gln
 35 40 45

Ile Gln Ala Gln Lys Asp Leu Thr Leu Met Gly Gln Gln Phe Asn Gln
 50 55 60

Gln Leu Gln Thr Asn Ser Phe Lys His Asp Leu Glu Met Leu Gly Ala
 65 70 75 80

Gln Val Gln Ala Gln Ala Gln Ala Gln Glu Asn Ala Ile Asn Ile Lys
 85 90 95

Thr Ala Gln Leu Gln Ala Ala Gly Phe Ser Lys Thr Asp Ala Thr Arg
 100 105 110

Leu Ala Leu Gly Gln Gln Pro Thr Arg Ala Val Asp Trp Ser Gly Thr
 115 120 125

Arg Tyr Tyr Thr Ala Asn Gln Pro Val Thr Gly Phe Ser Gly Gly Phe
 130 135 140

Thr Pro Thr Tyr Thr Pro Gly Arg Gln Val Thr Ser Arg Pro Val Asp
 145 150 155 160

Thr Ser Pro Leu Pro Ile Ser Gly Gly Arg Leu Pro Ser Leu Arg Gly
 165 170 175

Gly Ser Trp Ser Pro Arg Asp His Thr Pro Ala Thr Gln Gly Thr Tyr
 180 185 190

Thr Asn Gly Arg Phe Val Ser Leu Pro Lys Ile Gly Ser Ser Arg Ala
 195 200 205

<210> 5
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 5
 tccaggatga catagtccag gggcg

25

<210> 6
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 6
 tgggatgatt tcggcatgga caacg

25

<210> 7
 <211> 52
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 7
gtggtgctcg agtgcgccg caagctttat tattgtttga gcattcggcc tg 52

<210> 8
<211> 56
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 8
atccgaattc tagatgcacc accaccacca ccacatgagg atgagtgatg gcgcag 56

<210> 9
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 9
cggaattcgg atgaggatga gtgatggcgc a 31

<210> 10
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 10
tctcgacaag cttttattgt ttgagcattc ggcct 35

<210> 11
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 11
ccaaaagcca atggctctga 20

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 12
agttgaatgg gctccagggt

20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 13
ccgccgggca aattaaccaa

20

<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 14
aggtgggcaa ggtaggggtt a

21

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 15
gcgcagcgcc aaaagccaat

20

<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 16
gagtcctttg gcatgctacc cagg

24

<210> 17
<211> 20

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 17
 gccgccgggc aaattaacca

20

<210> 18
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 18
 ggcttaaccc ctaccttgcc ca

22

<210> 19
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 19
 cagtgccagc cctcttat

18

<210> 20
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer

<400> 20
 gtcccttgat gaggagga

18

<210> 21
 <211> 41
 <212> DNA
 <213> Murine Norovirus type 1

<400> 21
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa a

41

<210> 22
 <211> 42

<212> DNA
 <213> Murine Norovirus type 1

<400> 22
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa at 42

<210> 23
 <211> 54
 <212> DNA
 <213> Murine Norovirus type 1

<400> 23
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac cccc 54

<210> 24
 <211> 65
 <212> DNA
 <213> Murine Norovirus type 1

<220>
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 <222> (30)..(30)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> n is a, c, g, or t

<400> 24
 ggaaagatgt ttgactctca ggtcattatn atnaccacaa atnaacaaac ccccgcgccc 60
 ctgga 65

<210> 25
 <211> 64
 <212> DNA
 <213> Murine Norovirus type 1

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> n is a, c, g, or t

<400> 25
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atnaacaaac ccccgcgccc 60
 ctgg 64

<210> 26
 <211> 70
 <212> DNA
 <213> Murine Norovirus type 1

<400> 26
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg 70

<210> 27
 <211> 73
 <212> DNA
 <213> Murine Norovirus type 1

<220>
 <221> misc_feature
 <222> (43)..(43)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (64)..(65)
 <223> n is a, c, g, or t

<400> 27
 ggaaagatgc ttgactctca ggtcattatc atcaccacaa atnaacaaac ccccgcgccc 60
 ctgnnctatg tca 73

<210> 28
 <211> 77
 <212> DNA
 <213> Murine Norovirus type 1

<400> 28
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacct 77

<210> 29
 <211> 77
 <212> DNA
 <213> Murine Norovirus type 1

<400> 29
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacct 77

<210> 30
 <211> 79
 <212> DNA
 <213> Murine Norovirus type 1

<400> 30
 ggaaagatgc ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgg 79

<210> 31
 <211> 79
 <212> DNA
 <213> Murine Norovirus type 1

<400> 31
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgg 79

<210> 32
 <211> 79
 <212> DNA
 <213> Murine Norovirus type 1

<400> 32
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgg 79

<210> 33
 <211> 79
 <212> DNA
 <213> Murine Norovirus type 1

<400> 33
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgg 79

<210> 34
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 34
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcttggt ttatgctgag 120
 agccctg 127

<210> 35
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 35
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggg ttatgctgag 120
 agccctg 127

<210> 36
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 36
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggg ttatgctgag 120
 agccctg 127

<210> 37
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 37
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggg ttatgctgag 120
 agccctg 127

<210> 38
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 38
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggg ttatgctgag 120
 agccctg 127

<210> 39
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 39
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgatgag 120
 agccctg 127

<210> 40
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 40
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgctgag 120
 agccctg 127

<210> 41
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 41
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgctgag 120
 agccctg 127

<210> 42
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 42
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgctgag 120
 agccctg 127

<210> 43
 <211> 127
 <212> DNA
 <213> Murine Norovirus type 1

<400> 43
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgctgag 120

agccctg

127

<210> 44

<211> 127

<212> DNA

<213> Murine Norovirus type 1

<220>

<221> misc_feature

<222> (24)..(24)

<223> n is a, c, g, or t

<400> 44

ggaaagatgt ttgactctca ggtnattatc atcaccacaa atcaacaaac ccccgtagcc 60

ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggt ttatgctgag 120

agccctg 127

<210> 45

<211> 127

<212> DNA

<213> Murine Norovirus type 1

<400> 45

ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgtagcc 60

ctggactatg tcaacctgga ggcggctctgc cgccgcatag atttcctggt ttatgatgag 120

agccctg 127

<210> 46

<211> 117

<212> DNA

<213> Murine Norovirus type 1

<220>

<221> misc_feature

<222> (73)..(73)

<223> n is a, c, g, or t

<400> 46

ggaaagatgc ttgactctca ggtcattatc ataccacaaa tcaacaaacc cccgcgcctt 60

ggactatgtc aanctggagg cggctctgccg ccgcatagat ttcttggttt atgctga 117

<210> 47

<211> 124

<212> DNA

<213> Murine Norovirus type 1

<220>
 <221> misc_feature
 <222> (75)..(75)
 <223> n is a, c, g, or t

<400> 47
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaanctgga ggcggtctgc cgccgcatag atttcgttta tgatgagagc 120
 cctg 124

<210> 48
 <211> 119
 <212> DNA
 <213> Murine Norovirus type 1

<220>
 <221> misc_feature
 <222> (75)..(75)
 <223> n is a, c, g, or t

<400> 48
 ggaaagatgt ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaanctgga ggcggtctgc cgccgcatag atttcctggt ttatgctga 119

<210> 49
 <211> 127
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Consensus sequence

<400> 49
 ggaaagatgy ttgactctca ggtcattatc atcaccacaa atcaacaaac ccccgcgccc 60
 ctggactatg tcaacctgga ggcggtctgc cgccgcatag atttcctggt ttatgmtgag 120
 agccctg 127

<210> 50
 <211> 8
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Illustrative MNV-1 ORF1 motif

<220>
 <221> misc_feature

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<220>  
<221> misc_feature  
<222> (5)..(5)  
<223> Variable amino acid
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<400> 50
Gly Xaa Xaa Gly Xaa Gly Lys Thr
1             5
```

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<210> 51
<211> 4
<212> PRT
<213> Artificial Sequence
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<220>
<223> Illustrative MNV-1 ORF1 motif

<400> 51
Gly Asp Cys Gly
1

```
<210> 52
<211> 4
<212> PRT
<213> Artificial Sequence
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<220>
<223> Illustrative MNV-1 ORF1 motif

```
<400> 52
Lys Asp Glu Leu
1
```

```
<210> 53
<211> 4
<212> PRT
<213> Artificial Sequence
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<220>
<223> Illustrative MNV-1 ORF1 motif

<400> 53
Gly Leu Pro Ser
1

```
<210> 54
<211> 4
<212> PRT
<213> Artificial Sequence
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<220>

<223> Illustrative MNV-1 ORF1 motif

<400> 54

Tyr Gly Asp Asp

1